

REMARKS

In accordance with the foregoing, claims 1, 13, and 26 have been amended. Claims 1-26 and 41 are pending, with claims 1-17, 20-26 and 41 being under consideration.

EXAMINER INTERVIEW

Applicants are appreciative of Examiner Jen and Examiner Tran for meeting with the Attorney for Applicants and conducting the Examiner's Interview on December 16, 2008. In view of the discussion and amendments discussed at the Examiner's Interview, Applicants herein submit further supplemental amendments and remarks.

Favorable reconsideration and a withdrawal of the rejections in view of the below supplemental amendments and remarks, are respectfully requested.

REJECTION UNDER 35 U.S.C. §103

Claims 1-10, 12-17 and 21-26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over George, II et al. (George), U.S. Patent No. 4,777,416 in view of Kim, U.S. Patent No. 6,308,114; and claims 11 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over George in view of Kim and further in view of Jacobs, U.S. Patent No. 6,580,246. These rejections are respectfully traversed.

Applicants herein incorporate by reference the remarks submitted in the Preliminary Amendment filed October 9, 2008, and request a formal response to same in a next Office Action. Further, Applicants submit the below, additional remarks and amendments.

Claim 1 at least recites:

calculating a first direction angle of the mobile robot at a second location arrived at after the mobile robot travels a first distance from the first location, including determining the first direction angle as being dependent on an angle between a projected meeting of a corresponding mobile robot path from the first location to the second location and a projection from the second location to the designated location

...

the mobile robot rotates by the first direction angle and then travels a second distance;

Therefore, Applicants have clarified how and where the first direction angle is formed. Specifically, the first direction angle is dependent on an angle between a projected meeting of a corresponding mobile robot path from the first location to the second location and a projection

from the second location to the designated location. This dependency is due to this angle being directly dependent on the angle θ_{11} , for example, as shown in FIG. 6A of the present Application. Accordingly, claim 1 requires that the first direction angle, as particularly defined, be calculated, and that the mobile robot rotates by this first direction angle and travels a second distance.

In contrast, George describes that navigation of the robot through its environment is described in relation to successive nodes, shown in map 338, which have a known distance and angle among each other. See, George, col. 7, lines 48-62. Therefore, angles between one node to another are singularly and only briefly known and used, and do not need to be calculated in George, nor is any calculation, performed by the robot, described or suggested in George.

Further, George in column 8, lines 28-34, describes that the body-angle calibration system of George is responsive to the map, with column 8, lines 1-16 describing all of the detailed position, angle and distance information prestored in the map.

Accordingly, Applicants respectfully submit that George fails to describe that the robot in George moves from one location to another in order to determine a first direction angle, or bases any subsequent movement direction on previous movement directions. Rather, George describes FIGS. 5A and 5B to depict that calculations between the robot, and the beacon are made using the predetermined location of a node 316 (expected distance f_E is measured in advance from node 316 to wall 301, See col. 7, lines 7-8 of George), and an angle θ_{VE} , learned by initially placing the robot at node 316 to measure the angle. Node 316 of George is one of the nodes from the map, known to the robot.

Therefore, the robot in George is not described as moving at all to determine body angle calibration. The robot in George does not need to move because it has available a map of all of the nodes in the environment in which it travels, wherein the map contains detailed information on angles and distances between nodes themselves, and between nodes and beacons.

Therefore, Applicants submit that George fails to describe or suggest "a second location arrived at after the mobile robot travels a first distance from the first location," as claimed.

Further, Applicants submit that George fails to describe or suggest "the first direction angle as being dependent on an angle between a projected meeting of a corresponding mobile robot path from the first location to the second location and a projection from the second location to the designated location." Applicants respectfully submit that FIGS. 5A, 5B, and 5C of George which depict angles recorded in the environment map, are silent regarding the use of such an

angle between a projected meeting of a corresponding mobile robot path from the first location to the second location and a projection from the second location to the designated location.

The absence of such a calculated angle in George is expected since, in George, it would not be necessary to make such calculations, as angle values are found in the map of George, rather than the robot of George moving any distances and then calculating angles. Further, subsequent movements do not need to rely on how the robot reached a current position.

Therefore, Applicants submit that George fails to describe or suggest the features of claim 1.

Moreover, Applicants respectfully submit that the secondary reference of Kim fails to cure the abovementioned deficiency of George, as Kim describes robot movement via sound-direction using angles between sound receivers and one sound source, and not direction angles of the robot with respect to a first and second location.

Therefore, Applicants also respectfully submit that neither George nor Kim, whether considered alone or in combination, teach or describe at least the abovementioned features of claim 1.

Thus, in view of the above, Applicants respectfully submit that claim 1 and claims 2-10 and 12 which depend therefrom, patentably distinguish over the cited art.

Independent claims 13 and 26 at least recite similar features, with differing scope and breadth, and thus in view of the above reasons, Applicants respectfully submit that claims 13 and 26 and claims 14-17 and 21-25 which depend from claim 13 patentably distinguish over the prior art.

Favorable reconsideration and a withdrawal of the rejection against claims 1-10, 12-17 and 21-26 are respectfully requested.

Regarding the rejection of claims 11 and 20, Applicants respectfully submit that Jacobs similarly fails to cure the abovementioned deficiency of George, as Jacobs describes a robot touch shield device, and the movement path of the robot of Jacobs also does not teach or suggest at least the claimed feature described above with respect to independent claims 1, 13 and 26.

Favorable reconsideration and withdrawal of the rejection against claims 11 and 20 are thus respectfully requested.

Applicants further submit that claim 41 patentably distinguishes over the cited art of record as well at least because claim 41 at least recites "calculating a first direction angle of the mobile robot upon the mobile robot reaching the second location, the first direction angle being an angle between the mobile robot's current direction of travel and a projected direction of travel directly towards the designated location." As George fails to describe or suggest that the robot moves to a second location, before calculating any angles, Applicants submit that George fails to describe or suggest the claimed "the first direction angle being an angle between the mobile robot's current direction of travel and a projected direction of travel directly towards the designated location."

Therefore, Applicants submit that claim 41 patentably distinguishes over the cited art. Favorable consideration of claim 41 is respectfully requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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